AMSAT Weekly Satellite Report
Issue: WSR-325
Date: 2009-11-21
Sources: amsat-ans-2009-wsr-325.txt

This report is organized into four (4) parts.
Part 1 (S1) - operational analog amateur satellites
Part 2 (S2) - operational digital amateur satellites
Part 3 (S3) - non - operational satellites
Part 4 (S4) - deborbited/returned satellites

SB SAT @ AMSAT W8ISS $WSR-325.S1
WSR 325 Part 1 11/21/2009

AMSAT NEWS SERVICE BULLETIN 325.S1
FROM AMSAT HQ SILVER SPRING, MD, November 21, 2009
TO ALL RADIO AMATEURS
BID: $WSR-325.S1

SO-67 SumbandilaSat
Catalog Number: 35870
Launch Date: September 17, 2009

Status: Commissioning

Callsign: ZS0SUM

Uplink: 145.875MHz FM tone 233.6 Hz
Downlink: 435.345MHz FM

For more information about SO-67:
http://www.amsatsa.org.za/
[11212009]
=====
DO-64 Delfi-C3
Catalog number: 32789
Launch Date: April 28, 2008

Status: Operational
Current Mode: Science Mode - Beacon ONLY

Telemetry: 145.870 MHz

Downlink: 145.880 to 145.920 MHz
Uplink: 435.530 to 435.570 MHz

Delfi-C3 web page: http://www.delfic3.nl/

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=68
[02122009]
=====
VO-52 HAMSAT
Catalog number: 28650
Launch Date: May 05,2005

Status: Operational
Current Mode: U/v - Indian Transponder

Frequencies:
Indian Transponder:
Uplink: 435.220 to 435.280 MHz LSB/CW
Downlink: 145.930 to 145.870 MHz USB/CW

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Dutch Transponder:
Uplink:   435.225 to 435.275 MHz LSB/CW
Downlink: 145.925 to 145.875 MHz USB/CW


Indian Beacon:  145.859330 MHZ CW
Dutch Beacon:   145.860 MHz 12WPM with CW message

Mode and Antenna Polarization:
V: LHCP
U: RHCP

Official Webpage: http://www.amsatindia.org/hamsat.htm

To know what transponder is switched on please listen for the beacon
that is active. Each transponder has a different beacon.
[08072008]
=====
AO-51 ECHO
Catalog number: 28375
Launch date: June 29, 2004

Status: System Reload in progress

Current Modes:
FM Repeater ONE
Uplink:    145.920MHz FM
Downlink:  435.300Mhz FM
FM Repeater TWO
Uplink:    OFF
Downlink:  OFF
BBS
Uplink:   1268.700MHz 9k6 FM
Downlink:  435.150MHz 9k6 FM
Telemetry
Downlink:  435.150MHz

Analog voice downlink:     435.300 MHz FM
                           435.150 MHz FM
                          2401.200 Mhz FM
Analog voice uplink:       145.860 MHZ FM
                           145.880 MHz USB
                           145.920 MHz FM
                          1268.700 MHz FM
Digital Downlinks:         435.150 MHz FM 38k4 PBP, 1 watt output
                           435.150 MHz FM 9k6 Pacsat Broadcast Protocol
                          2401.200 MHz FM 38k4 bps, AX.25
Digital Uplink:            145.860 MHz FM 9k6 Pacsat Broadcast Protocol
                          1268.700 mhz FM 9k6 Pacsat Broadcast Protocol
Beacon:                    435.150 MHz

Mode and Antenna Polarization:
T: Linear
V: Linear
U: TX A (usually digital)LHCP
   TX B (usually analog) RHCP
L: Linear
S: Linear

Broadcast: PECHO-11
BBS: PECHO-12

Official Webpage: http://www.amsat.org/amsat-new/echo/
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IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=19
[11112009]
=====
SO-50 SAUDISAT-1C
Catalog number: 27607
Launch date: December 20, 2002

Status: Operational

Current Mode: V/u

Uplink: 145.850 MHz FM - 67.0 Hz PL tone
Downlink: 436.795 MHz

Mode and Antenna Polarization:
V: Linear
U: Linear

Official Webpage: http://saudisat.kacst.edu.sa/index.shtml
(not up and running currently)

To switch the transmitter on, you need to send a CTCSS tone of 74.4
Hz. The order of operation is thus: (allow for Doppler as necessary):
1) Transmit on 145.850 MHz with a tone of 74.4 Hz to arm the 10 minute
   timer on board the spacecraft.
2) Now transmit on 145.850 MHz (FM Voice) using 67.0 Hz to PT the re-
   peater on and off within the 10 Minute window.
3) Sending the 74.4 tone again within the 10 minute window will reset
   the 10 minute timer.
[05282007]
=====
FO-29 JAS-2
Catalog number: 24278
Launch Date: August 17, 1996

Status: RECOVERY
Current Mode: V/u (Mode JA)

Voice/CW (Mode JA)
Uplink: 145.90 to 146.00 MHz CW/LSB
Downlink: 435.80 to 435.90 MHz CW/USB
Beacon: 435.795 MHz

Digital Mode JD
Uplinks: 145.850 MHz FM
          145.870 MHz FM
          145.910 MHz FM
Downlink: 435.910 MHz 1200-baud BPSK or 9600-baud FSK
Callsign: 8J1JCS
Digitalker: 435.910 MHz

Mode and Antenna Polarization:
V: RHCP
U: RHCP

For current operational schedule for FO-29:
http://www.ne.jp/asahi/m-arai/gkz/satinfo/fo29e.htm

JARL English webpage:
http://www.jarl.or.jp/English/5_Fuji/ejasmenu.htm

AMSAT-NA Webpage:

http://www.amsat.org/amsat-new/satellites/satInfo.php?satID
=5&retURL=/satellites/status.php

Mineo Wakita, JE9PEL, has created a simple decoder program for FO29's
CW telemetry downlink: http://www.ne.jp/asahi/hamradio/je9pel/
fo29cwts.htm
[09062009]
=====
AO-27 AMRAD
Catalog number: 22825
Launch date: September 26, 1993

Status: Operational

Current Mode: V/u

Uplink: 145.850 MHz FM
Downlink: 436.797 MHz FM

Mode and Antenna Polarization:
V: Linear
U: Linear

Official Webpage: http://www.ao27.org
[03232009]
=====
AO-7 AMSAT OSCAR 7
Catalog number: 07530
Launch Date: November 15, 1974

Status: Operational

Current Mode: Alternating between Mode A and B every 24 hours

Uplink: 145.850 to 145.950 MHz CW/USB Mode A
          432.125 to 432.175 MHz CW/LSB Mode B
Downlink: 29.400 to 29.500 MHz CW/USB Mode A (1W PEP)
          145.975 to 145.925 MHz CW/USB Mode B (8W PEP)
          145.975 to 145.925 MHz CW/USB Mode C (2W PEP)
Beacons: 29.502 MHz CW
          145.972 MHz CW
          435.100 MHz CW
         2304.100 MHz CW

Official Webpage:
http://www.amsat.org/amsat-new/satellites/sat_summary/ao7.php

The AO-7 Logbook and Resource Website:
http://www.planetemily.com/ao7/
[02122009]
=====
INTERNATIONAL SPACE STATION (ISS) - ARISS
Catalog number: 25544
Launch date: November 20, 1998

Status: Operational

Current Active Modes: FM Repeater - V/u
                      Voice -   V/v
                      BBS -   V/v
                      APRS -   V/v
                      SSTV -   V/v

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Expedition 21 Crew:
Commander:                Frank De Winne   ON1DWN
Flight Engineer:          Robert Thirsk    VA3CSA
Flight Engineer:          Roman Romanenko
Flight Engineer:          Nicole P. Stott  KE5GJN
Flight Engineer:          Jeff Williams    KD5TVQ
Flight Engineer:          Maxim Suraev

STS-129 Crew:
Commander:                Charlie Hobaugh
Pilot:                    Barry Wilmore
Mission Specialist:       Bobby Satcher
Mission Specialist:       Mike Foreman
Mission Specialist:       Randy Bresnik
Mission Specialist:       Leland Melvin

Available Modes and Frequencies:

Digital/APRS:
Worldwide packet uplink:   145.825 MHz FM 1k2
Worldwide packet downlink: 145.825 Mhz FM 1k2

Voice:
Region 1 voice uplink:     145.200 MHz FM
Region 2/3 voice uplink:   144.490 MHz FM
Worldwide downlink:        145.800 MHz FM

Crossband Repeater:
Repeater Uplinks:         1269.650 MHz FM
                           437.800 MHz FM
                           145.990 MHz FM - 67.0 PL (Kenwood)
Repeater Downlink:         145.800 MHz FM
                           437.800 MHz FM (Kenwood)

SSTV Robot 36:
Downlink:                  145.800 MHz FM

Mode and Antenna Polarization:
V: Linear
U: Linear

Callsigns:
Belgian:                   OR4ISS
German:                    DP0ISS
Russian:                   RS0ISS
                           RZ3DZR
United States:             NA1SS
Packet Mailbox:            RS0ISS-11
Digipeater callsign:       ARISS

Official ARISS Webpage:    http://www.rac.ca/ariss
ISS Fan Club Webpage:      http://www.issfanclub.com
APRS tracking page:        http://www.ariss.net/

ISS Daily Crew Schedule: http://spaceflight.nasa.gov/station/timelines
Remember that the crew operates on UTC time. Also, all of the time
line is NOT translated from Russian and posted.
[11212009]
NNNN
/EX

SB SAT @ AMSAT W8ISS $WSR-325.S2
WSR 325 Part 2 11/21/2009
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AMSAT NEWS SERVICE BULLETIN 325.S2
FROM AMSAT HQ SILVER SPRING, MD, November 21, 2009
TO ALL RADIO AMATEURS
BID: $WSR-325.S2

SwissCube
Catalog Number: 35932
Launch Date: September 23, 2009

Status: In Orbit

Callsign: HB9EG

Beacon(100mw): 437.5050MHz CW
Beacon(1w): 437.5050MHz FSK 1k2bps
[11112009]
=====
UWE-2
Catalog Number: 35934
Launch Date: September 23, 2009

Status: In Orbit

Beacon(500mw): 437.3850 MHz AFSK 1k2bps
437.3850 MHz FSK 9k6bps
[1112009]
=====
ITUpsAT1
Catalog Number: 35935
Launch Date: September 23, 2009

Status: In Orbit

Beacon(100mw): 437.325MHz CW
Beacon(1w): 437.325MHz 19k2bps
[11112009]
=====
BEESAT
Catalog Number: 35933
Launch Date: September 23, 2009

Status: In Orbit

Callsign: DP0BEE

Beacon(100mw): 436.000MHz CW
Beacon(500mw): 436.000MHz GMSK 4k8bps
[11112009]
=====
Pollux
Catalog Number:
Launch Date: July 31, 2009

Status: Operational

Callsign: POLLUX-1

Downlink: 145.825MHz 1k2 AX.25
[10042009]
=====
Castor
Catalog Number:
Launch Date: July 31, 2009

Status: Operational

Callsign: KD4HBO-1

Downlink: 145.825 MHz 1k2 AX.25
[10042009]
=====
BEVO-1 (DRAGONSAT-1)
Catalog Number: 35004
Launch Date: May 19, 2009

Status: Operational

Downlink: 437.325 MHz 9k6 GMSK
          437.325 MHz CW 20wpm
[07312009]
=====
AggieSat2 (DRAGONSAT-2)
Catalog Number: 35004
Launch Date: May 19, 2009

Status: Operational

Downlink: 436.250 MHz 9k6 FHSS
[11112009]
=====
CP-6
Catalog Number: 35004
Launch Date: May 19, 2009

Status: Commissioning

Downlink: 437.365 MHz 1k2 AFSK
[06052009]
=====
HAWKSAT 1
Catalog number: 35003
Launch Date: May 19, 2009

Status: ?

Downlink: 437.345 ?
[06052009]
=====
Pharmasat
Catalog Number: 35002
Launch Date: May 19, 2009
Status: Commissioning

Downlink: 437.465 MHz 1k2 AFSK
[06052009]
=====
ANUSAT
Catalog Number: 34808
Launch Date: April 20, 2009

Status: ?

Downlink: 435.000 MHz
Uplink: 145.800 MHz

Telemetry: 137.400 MHz
[05112009]
=====

SOHLA-1 (ASTRO TECH.)
Catalog Number: 33496
Launch Date: January 23, 2009

Status: Commisioning

Proposed Frequencies and Modes:
Downlink: 437.505 MHz AFSK/CW
Beacon: 437.505 MHz AFSK/CW

Callsign:

IARU coordination status page:
http://www.amsat.org.uk/iaru/formal_detail.asp?serial=101
[03232009]
=====
KAGAYAKI (Solan Co.)
Catalog Number: 33495?
Launch Date: January 23, 2009

Status: In Orbit

Downlink: 437.375 MHZ   FSK9k6/CW
Beacon: 437.375 MHz   FSK9k6/CW

IARU coordination status page:

AMSAT-NA webpage:

[01152009]
=====
STARS (Kagawa Univ.) (Twin Satellites)
Catalog Number: 33498
Launch Date: January 23, 2009

Status: Operational ?

Downlinks: 437.485 MHz FM/CW
           437.465 MHz FM/CW
Beacons: 437.305 MHz FM/CW
           437.275 MHz FM/CW

Callsigns: JR5YBN
           JR5YBO

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=99

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=121&retURL
=/satellites/status.php
[022152009]
=====
KKS-1 (Tokyo MCIT)
Catalog Number: 33499
Launch Date: January 23, 2009

Status: Operational

Downlink: 437.455 MHz AFSK/CW
Beacon: 437.385 MHz AFSK/CW

Callsign: JQ1YYY

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=107

AMSAT-NA webapge:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=120&retURL
=/satellites/status.php
[02212009]
=====
PRISM (Tokyo Univ.)
Catalog Number: 33493
Launch Date: January 23, 2009

Status: Operational ?

Downlink: 437.425 MHz AFSK/GMSK/CW
Beacon: 437.250 MHz AFSK/GMSK/CW

Callsign: JQ1YCX

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=97

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=119&retURL
=/satellites/status.php
[02212009]
=====
RS-30 Radio Sputnik 30 (Yubileiny)
Catalog Number: 32953
Launch Date: May 23, 2008

Status: Operational

Curent Modes: Telemetry
              Audio
              Images

Downlinks: 435.315 MHz
           435.215 MHz

AMSAT-NA website:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=115&ret
URL=/satellites/status.php

Official website:
http://www.npopm.com/?cid=leoca&caid=43
[02122009]
=====
CAPE-1
Catalog Number: 31130
Launch Date: April 17,2007

Status: Intermittent

Current Mode: /u

TLM Downlink: 435.245 MHz 9600 bs FSK AX.25
CW Beacon: 435.245 MHz CW

Callsign: K5USL

TLM and CW interchange every 30 seconds.

AMSAT-NA webpage:

http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=94&retURL=
/satellites/status.php

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=72
[02122009]
=====
CP3
Catalog Number: 31129
Launch Date: April 17,2007

Status: Operational

Current Mode: /u

Downlink: 436.845 MHz 1200 bps AFSK AX.25
[02122009]
=====
GENESAT-1
Catalog Number: 29655
Launch Date: December 16, 2006

Status: Operational

Current Mode: /u

Callsign: KE7EGC

Telemetry Beacon Downlink: 437.0695 MHz AFSK 1200 BPS

Official webpage: http://www.crestnrp.org/genesat1/ahc.html
[091512009]
=====
CO-58 CubeSat XI-V
Catalog number: 28895
Launch Date: October 27, 2005

Status: Operational - CW Beacon only

Current Mode: /u

Telemetry Downlink: 437.4250 MHz AFSK 1200bps using AFK protocol
Beacon: 437.2750 MHz CW

Callsign: JQ1YGW

Official Webpage: http://www.space.t.u-tokyo.ac.jp/cubesat/mission/V/

Pictures received by Mineo Wakita - JE9PEL:
http://www.ne.jp/asahi/hamradio/je9pel/xivpicte.htm
[02212009]
=====
CO-57 CubeSat XI-IV
Catalog number: 27848
Launch date: June 30, 2003

Status: ?????

Current Mode: /u

Beacon: 436.8475 MHz CW
Telemetry : 437.4900 MHz AFSK 1200 BPS

Callsign: JQ1YGW

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=96&retURL
=/satellites/status.php

Official Webpage: http://www.space.t.u-tokyo.ac.jp/cubesat/mission/V/
[06082009]
=====
CO-56 CUTE-1.7 + APD
Catalog number: 28941
Launch date: February 21, 2006

Status: Operational?

Uplink: 1268.5000 MHz GMSK 9600 BPS
Downlink: 437.4700 MHz 1200 FM ax25 or SRLL (ACTIVE only near Japan?)

Telemetry Beacon: 437.3850 CW
Callsign: JQ1YPC

Information webpage:
http://lss.mes.titech.ac.jp/ssp/spacerium/cute1blog/

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=56
[02122009]
=====
AO-51 ECHO
Catalog number: 28375
Launch date: June 29, 2004

Status: System Reload in Progress

Current Modes:
FM Repeater ONE
Uplink: 145.920MHz FM
Downlink: 435.300Mhz FM
FM Repeater TWO
Uplink: OFF
Downlink: OFF
BBS
Uplink: 1268.700MHz 9k6 FM
Downlink: 435.150MHz 9k6 FM
Telemetry
Downlink: 435.150MHz

Analog voice downlink: 435.300 MHz FM
                           435.150 MHz FM
                          2401.200 Mhz FM
Analog voice uplink: 145.860 MHZ FM
                           145.880 MHz USB
                           145.920 MHz FM
                          1268.700 MHz FM
Digital Downlinks: 435.150 MHz FM 38k4 PBP, 1 watt output
                           435.150 MHz FM 9k6 Pacsat Broadcast Protocol
                          2401.200 MHz FM 38k4 bps, AX.25
Digital Uplink: 145.860 MHz FM 9k6 Pacsat Broadcast Protocol
                          1268.700 mhz FM 9k6 Pacsat Broadcast Protocol
Beacon: 435.150 MHz

Mode and Antenna Polarization:
T: Linear
V: Linear
U: TX A (usually digital)LHCP

```
   TX B (usually analog) RHCP
L: Linear
S: Linear

Broadcast: PECHO-11
BBS: PECHO-12

Official Webpage: http://www.amsat.org/amsat-new/echo/

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=19
[10262009]
=====
QuakeSat
Catalog Number: 27845
Launch Date: June 30, 2003

Status: Telemetry only

Current Mode: 9600 baud data packet

Mode U packet
Downlink: 436.675 MHz 9k6 BPS

Quakesat webpage:
http://www.quakefinder.com/services/quakesat-ssite/
[04272009]
=====
CO-55 CUTE-1
Catalog Number: 27844
Launch date: June 30, 2003

Status: Operational

Current Mode: CW downlink worldwide
              AX25 Packet with uplink command over Japan only

Mode U Telemetry
Downlink: 437.4000 MHz AFSK 1200 BPS

Mode U TLM Beacon
Downlink: 436.8375 MHz CW

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=69&retURL
=/satellites/status.php
[02212009]
=====
NO-44 PCSAT
Catalog number: 26931
Launch Date: September 30, 2001

Status: Telemetry only

Current Mode: V/v

General Usage Uplink/Downlink: 145.827 MHz 1200 Baud
Special Usage Downlink:        144.390 Mhz 1200 Baud

PCSAT APRS page: http://pcsat.aprs.org

aprstlm Telemetry Decoder program:
http://www.xciv.org/~iain/aprstlm/v1.2/
[03302009]
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=====
GO-32 Gurwin TechSat-1B
Catalog number: 25397
Launch Date: July 10, 1998

Status: Telemetry only

Current Modes:
Telemetry : /u

Downlink: 435.225 MHz FM (9600-baud FSK)
          435.325 Mhz - Not Available - temperature problems
Uplinks:  145.850 FM
          145.890 FM
          145.930 FM
         1269.700 FM
         1269.800 FM
         1269.900 FM

Broadcast Callsign: 4XTECH-11
BBS Callsign:       4XTECH-12

More information of GO-32 can be found at:
http://asri.technion.ac.il/techsat/

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=14&retURL
=/satellites/status.php
[04272009]
=====
RS-22 RADIO SPORT RS-22
Catalog number: 27939
Launch Date: September 27, 2003

Status: Operational - 70cm cw only

Current Mode:  /u

CW Beacon - 435.352 MHz
            145.818 MHz

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=76&retURL
=/satellites/status.php
[02212009]
=====
LO-19 LUSAT
Catalog number: 20442
Launch date: January 22, 1990

Status: CW Beacon only

Uplinks:          145.840 MHz 1200-baud Manchester FSK
                  145.860 MHz 1200-baud Manchester FSK
                  145.880 MHz 1200-baud Manchester FSK
                  145.900 MHz 1200-baud Manchester FSK

CW downlink:      437.125 MHz

Digital downlink: 437.150 MHz SSB (RC-BPSK 1200-baud PSK)

Broadcast Callsign: LUSAT-11
BBS: LUSAT-12o
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General information and telemetry samples can be found at:
www.telecable.es/personales/ea1bcu
[03162009]
=====
CanX-2
Catalog number: 32790
Launch Date: April 28, 2008

Status: Operational in range of ground station only

Downlink: 437.478 MHz GFSK

For the latest project status update please visit the Can X-2 web
page: http://www.utias-sfl.net/nanosatellites/CanX2/

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=46
[02212009]
=====
AAUSAT-II
Catalog number: 32788
Launch Date: April 28, 2008

Status: Operational

Downlink: 437.425 MHz 1k2 baud packet

For the latest project status update please visit the AAUSAT-II web
page:
http://www.aausatii.aau.dk/homepage/index.php?language=en&page=home

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=60
[02212009]
=====
CO-65 CUTE-1.7+APD II
Catalog number: 32785
Launch Date: April 28, 2008

Status: Digipeater

Downlink: 437.475 MHz 9k6 Packet
Uplink: 1267.600 Mhz

Telemetry Beacon:
Downlink: 437.2750 MHz CW

For the latest project status update please visit the Cute-1.7+APD II
web page: http://lss.mes.titech.ac.jp/ssp/cute1.7/index_e.html

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=78

Command Station blog website:
http://lss.mes.titech.ac.jp/ssp/cute1.7/blog/

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=112&retURL
=/satellites/status.php
[02212009]
=====
Compass-1
Catalog number: 32787
Launch Date: April 28, 2008

Status: Operational

Current Mode: 4k8 MSK packet

Uplink: 145.980 MHz FM
Downlink: 437.275 Mhz CW
437.405 MHz Packet

For the latest project status update please visit the Compass 1 web page: http://www.raumfahrt.fh-aachen.de/

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=52

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=114&retURL=/satellites/status.php
[04272009]
=====
CO-66 Seeds II
Catalog number: 32791
Launch Date: April 28, 2008

Status: Operational

Downlink: 437.485 MHz

Callsign: JQ1YGU

For the latest project status update please visit the Seeds 2 web page: http://cubesat.aero.cst.nihon-u.ac.jp/english/seeds_2_e.html

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=36

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=113&retURL=/satellites/status.php
[02212009]
=====
INTERNATIONAL SPACE STATION (ISS) - ARISS
Catalog number: 25544
Launch date: November 20, 1998

Status: Operational

Current Active Modes: FM Repeater - V/u
Voice - V/v
BBS - V/v
APRS - V/v
SSTV - V/v

Expedition 21 Crew:

Commander:	Frank De Winne	ON1DWN
Flight Engineer:	Robert Thirsk	VA3CSA
Flight Engineer:	Roman Romanenko	
Flight Engineer:	Nicole P. Stott	KE5GJN
Flight Engineer:	Jeff Williams	KD5TVQ
Flight Engineer:	Maxim Suraev	

STS-129 Crew:

Commander:	Charlie Hobaugh
Pilot:	Barry Wilmore

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Mission Specialist:       Bobby Satcher
Mission Specialist:       Mike Foreman
Mission Specialist:       Randy Bresnik
Mission Specialist:       Leland Melvin

Available Modes and Frequencies:
Digital/APRS:
Worldwide packet uplink:   145.825 MHz FM 1k2
Worldwide packet downlink: 145.825 Mhz FM 1k2

Voice:
Region 1 voice uplink:     145.200 MHz FM
Region 2/3 voice uplink:   144.490 MHz FM
Worldwide downlink:        145.800 MHz FM

Crossband Repeater:
Repeater Uplinks:         1269.650 MHz FM
                           437.800 MHz FM
                           145.990 MHz FM - 67.0 PL (Kenwood)
Repeater Downlink:         145.800 MHz FM
                           437.800 MHz FM (Kenwood)

SSTV Robot 36:
Downlink:                  145.800 MHz FM

Mode and Antenna Polarization:
V: Linear
U: Linear

Callsigns:
Belgian:                   OR4ISS
German:                    DP0ISS
Russian:                   RS0ISS
                           RZ3DZR
United States:             NA1SS
Packet Mailbox:            RS0ISS-11
Digipeater callsign:       ARISS

Official ARISS Webpage:    http://www.rac.ca/ariss
ISS Fan Club Webpage:      http://www.issfanclub.com
APRS tracking page:        http://www.ariss.net/

ISS Daily Crew Schedule: http://spaceflight.nasa.gov/station/timelines
Remember that the crew operates on UTC time. Also, all of the time
line is NOT translated from Russian and posted.
[11212009]
NNNN
/EX

SB SAT @ AMSAT W8ISS $WSR-325.S3
WSR 325 Part 3 11/21/2009

AMSAT NEWS SERVICE BULLETIN 325.S3
FROM AMSAT HQ SILVER SPRING, MD, November 21, 2009
TO ALL RADIO AMATEURS
BID: $WSR-325.S3

THE FOLLOWING ARE IN ORBIT BUT ARE NON-OPERATIONAL AT THIS TIME:

CP4
Catalog Number: 31122
Launch Date: April 17,2007

Status: Non-Operational
```

Current Mode: /u

TLM Downlink: 437.325 MHz 1200 bps FSK AX.25
CW Beacon: 437.325 MHz CW

IARU coordination status page:
http://www.amsat.org.uk/iaru/finished_detail.asp?serial=79
[10022008]
=====
LIBERTAD-1
Catalog Number: 31128
Launch Date: April 17,2007

Status: Non-Operational

Current Mode: V/u APRS Packet ax25

Callsign: 5K3L

Uplink: 145.825 MHz 1200 AFSK ax25 APRS
Downlink: 437.399 MHz 1200 AFSK ax25 APRS

Telemetry Beacon: 437.4050 MHz 1200 AFSK ax25
[02122009]
=====
PO-63 PEHUENSAT-1
Catalog Number: 29712
Launch Date: January 10, 2007

Status: Non-Operational

Current Mode: V/v

Uplink/Downlink: 145.825 Mhz FM
Voice Recorder: 145.825 Mhz FM
[01012009]
=====
NCUBE-2
Catalog number: 28897
Launch Date: October 27, 2005

Status: Still attached to XO-53 (SSETI)?

Proposed Callsign: TBA
Proposed Transmit Frequency: 437.305
                             2407.250

Official Website: http://www.ncube.no
[05012006]
=====
XO-53 SSETI
Catalog number: 28894
Launch Date: October 27, 2005

Status: Non-operational

Voice Uplink: 437.250 MHz FM 67Hz CTCSS
Voice Downlink: 2401.835 MHz FM
Packet Up/Downlink: 437.250 MHz 9k6 packet
Packet Downlink   2401.835 MHz 38k4 packet

Official webpage: http://sseti.gte.tuwien.ac.at/WSW4/
Latest news: http://sseti.gte.tuwien.ac.at/WSW4/MOPWS/news.php

[01222007]
=====
UWE-1
Catalog Number: 28892
Launch Date: October 27, 2005

Status: Non-Operational

Mode U Telemetry
Downlink: 437.5050 MHz 9600 AFSK
[08132007]
=====
CANX-1
Catalog Number: 27847
Launch Date: June 30, 2003

Status: Non-Operational

Downlink: 437.8800 MHz AFSK 1k2bps
[06052009]
=====
DTUSAT
Catalog Number: 27842
Launch Date: June 30, 2003

Status: Non-Operational

Current Mode: 2k4 AFSK Packet last reported

Downlink: 437.475MHz

Officail webpage: http://dtusat1.dtusat.dtu.dk/

AMSAT-NA webpage:
http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=101&retURL
=satellites/all_oscars.php
[02212009]
=====
AO-49 AATiS OSCAR-49 (SAFIR-M)
Catalog number: 27605
Launch Date: December 20, 2002

Status: Non-operational.

Uplink: 435.275 MHz 1200-baud AFSK
Downlink: 145.825 MHz 9600-baud FSK
(optional voice message)

Broadcast callsign: DP0AIS

Official webpage: http://amend.gmxhome.de
[01222007]
=====
MO-46 TIUNGSAT-1
Catalog number: 26548
Launch date: September 26, 2000

Status: Telemetry only

Uplinks: 145.850 MHz
           145.925 MHz 9600-baud FSK
Downlink: 437.325 MHz

Broadcast callsign: MYSAT3-11

BBS: MYSAT3-12

TiungSat-1 is Malaysia's first micro-satellite and in addition to
commercial land and weather imaging payloads offers FM and FSK
Amateur Radio communication.

TiungSat-1, named after the mynah bird of Malaysia, was developed as
a collaborative effort between the Malaysian government and Surrey
Satellite Technology Ltd.
[03302009]
=====
NO-45 SAPPHIRE
Catalog number: 26932
Launch Date: September 30, 2001

Status: Non-Operational

Downlink: 437.095 MHz 1200 baud AX-25 AFSK
Uplink: 145.945 MHz UI Digipeater
Digi Callsign: KE6QMD

Everyone is welcome to use the digipeating/APRS features of Sapphire,
as per the user service agreement located at the following URL:
http://web.usna.navy.mil/~bruninga/pcsat/contract.txt
[03132005]
=====
SO-42 SAUDISAT-1B
Catalog number: 26549
Launch date: September 26, 2000

Status: Non-Operational

Downlink: 437.075 MHz

Broadcast Callsign: SASAT2-11
BBS: SASAT2-12

Further information is available at:
http://www.amsat.org/amsat/sats/n7hpr/so42.html
[01222007]
=====
SO-41 SAUDISAT-1A
Catalog number: 26545
Launch Date: September 26, 2000

Status: Non-Operational

Uplink: 145.850 MHz
Downlink: 436.775 MHz

Broadcast Callsign: SASAT1-11
BBS: SASAT1-12

Further information is available at:
http://www.amsat.org/amsat/sats/n7hpr/so41.html
[01222007]
=====
AO-40 AMSAT OSCAR 40
Catalog number: 26609
Launch Date: November 16, 2000

Status: Non-Operational

Uplinks

```
-------
V-band:   145.840 -  145.990 MHz CW/LSB
U-band:   435.550 -  435.800 MHz CW/LSB
L1-band: 1269.250 - 1269.500 MHz CW/LSB
L2-band: 1268.325 - 1268.575 MHz CW/LSB

Downlinks
---------
S2-band:  2401.225 -  2401.475 MHz CW/USB
K-band:  24048.010 - 24048.060 MHz CW/USB
Beacon:   2401.323 MHz
         24048.035 MHz

P3-D Telemetry Beacons (IHU)
----------------------------
BEACON  General Beacon(GB)  Middle Beacon(MB)  Engineering Beacon(EB)
2 m                   none        145.898 MHz                    none
70cm           435.438 MHz        435.588 MHz             435.838 MHz
13cm(1)       2400.188 MHz       2400.338 MHz            2400.588 MHz
13cm(2)       2401.173 MHz       2401.323 MHz            2401.573 MHz
3cm          10450.975 MHz      10451.125 MHz           10451.375 MHz
1.5cm        24047.885 MHz      24048.035 MHz           24048.285 MHz
[07162007]
=====
OO-38 OPAL
Catalog Number: 26063
Launch Date: January 27, 2000

Status: Non-Operational

Mode U TLM Beacon
Downlink: 437.1000 MHz 9600 FSK
[08132007]
=====
UO-36 UoSAT-12
Catalog number: 25693
Launch date: April 21, 1999

Status: Unknown

Uplink:    145.960 MHz (9600-baud FSK)
Downlinks: 437.025 MHz
           437.400 MHz

Broadcast Callsign: UO121-11
BBS: UO121-12

The VK5HI viewer shareware for UO-36 is available on the AMSAT-NA web
site at the following URL:
ftp://ftp.amsat.org/amsat/software/win32/display/ccddsp97-119.zip
[01222007]
=====
SO-35 SUNSAT
Catalog Number: 25636
Launch date:February 23, 1999

Status: Non-Operational

Downlink: Mode B Repeater: 436.291 MHz
Mode J Digipeater:         436.250 MHz

Uplinks: Mode B Repeater:  145.825 MHz
Mode J Digipeater:         145.825 MHz
                           145.900 MHz
```

For more information of SUNSAT vist the satellite web site:
http://esl.ee.sun.ac.za/projects/sunsat/
[01222007]
=====
PO-34 PANSAT
Catalog number: 25520
Launch date: October 30, 1998

Status: Telemetry downloads only

Uplink/downlink: 436.500 MHz

Official Webpage: http://www.sp.nps.navy.mil/pansat/
[05092004]
=====
SO-33 SEDSAT-1
Catalog number: 25509
Launch date: October 24, 1998

Status: Semi-operational

Downlink: 437.910 MHz FM (9600-baud FSK)

The satellite is not currently available for uplink transmissions and
the image and transponder recovery efforts have been unsuccessful.

For more information on SedSat-1 visit the satellite web site:
http://seds.uah.edu/projects/sedsat/sedsat.htm
[09042006]
=====
TO-31 TMSAT-1
Catalog number: 25396
Launch Date: July 10, 1998

Status: Non-operational

Uplink: 145.925 MHz 9600 baud FSK
Downlink: 436.925 MHz 9600 baud FSK

Broadcast callsign: TMSAT1-11
BBS: TMSAT1-12
[05012006]
=====
MO-30 UNAMSAT-2
Catalog Number: 24305
Launch Date: September 5, 1996

Status: Non-operational

Downlink: 435.1380 MHz AFSK 1200 BPS
Downlink: 435.2060 MHz AFSK 1200 BPS
Uplink: 145.8150 MHz AFSK 1200 BPS
Uplink: 145.8350 MHz AFSK 1200 BPS
Uplink: 145.8550 MHz AFSK 1200 BPS
Uplink: 145.8750 MHz AFSK 1200 BPS
[06042009]
=====
PO-28 POSAT-1
Catalog number: 22829
Launch Date: September 25, 1993

Status: Non-operational

Downlink: 429.950
Uplink: Not until handover back to Amatuer usage

Broadcast callsign: POSAT1-11
BBS callsign: POSAT1-12

AMSAT Webpage: http://www.amsat.org/amsat/sats/n7hpr/po28.html
POSAT-1 webpage:
http://www.ee.surrey.ac.uk/SSC/CSER/UOSAT/missions/posat1.html
[01012009]
=====
IO-26 ITAMSAT
Catalog number: 22826
Launch Date: September 26, 1993

Status: PSK carrier only

Current Mode:

Uplinks: 145.875 MHz FM 1200-baud
145.900 MHz FM 1200-baud
145.925 MHz FM 1200-baud
145.950 MHz FM 1200-baud

Downlink: 435.808 MHz PSK

Broadcast Callsign: ITMSAT-11
BBS: ITMSAT-12

Official webpage: http://www.itamsat.org
AMSAT Webpage: http://www.amsat.org/amsat/sats/n7hpr/io26.html
[01212007]
=====
KO-25 KITSAT
Catalog number: 22828
Launch date: September 26, 1993

Status: Non-operational

Uplink: 145.980 MHz FM 9600-baud FSK
Downlink: 436.500 MHz FM

Broadcast Callsign: HL02-11
BBS: HL02-12
[05092004]
=====
AO-24 ARSENE
Catalog Number: 22654
Launch Date: May 13, 1993

Status: Non-operational

Uplink: ?
Downlink: 145.975 MHz 1k2bps FM AFSK
2446.540 MHz

Broadcast callsign:
BBS:
[11212009]
=====
KO-23 KITSAT
Catalog number: 22077
Launch date: August 10, 1992

```
Status: Non-operational

Uplink:   145.900 MHz FM (9600-baud FSK)
Downlink: 435.170 MHz FM

Broadcast Callsign: HLO1-11
BBS: HLO1-12
[01222007]
=====
UO-22 UOSAT
Catalog number: 21575
Launch date: July 17, 1991

Status: Non-Operational

Uplink:   145.900 FM 9600-baud FSK
Downlink: 435.120 MHz FM

Broadcast Callsign: UOSAT5-11
BBS: UOSAT5-12
[01222007]
=====
AO-21 AMSAT-OSCAR 21
Catalog Number: 21087
Launch Date: January 29, 1991

Status: Non-Operational

Uplink:   435.041 MHz FM DSP
Downlink: 145.983 MHz FM DSP
[01222007]
=====
FO-20 JAS-1b
Catalog number: 20480
Launch Date: February 07, 1990

Status: Non-Operational

Beacons:   435.795 MHz CW
           435.910 MHz AX25

Voice Transponder:
Uplink:   145.900 to 146.000 MHz CW/LSB
Downlink: 435.800 to 435.900 MHz CW/USB

Digital Transponder:
Uplinks:  145.850 MHz
          145.870 MHz
          145.890 MHz
          145.910 MHz
Downlink: 435.910 MHz

More FO-20 info can be found at:
http://www.amsat.org/amsat/sats/n7hpr/fo20.html
[01152007]
=====
WO-18 WEBERSAT
Catalog Number: 20441
Launch Date: January 22, 1990

Status: Non-Operational

Downlink: 437.104 MHz SSB 1200 Baud PSK AX.25
[05012006]
```

```
=====
DO-17 Dove
Catalog Number: 20440
Launch Date: January 22, 1990

Status: Non-operational.

Downlink:  145.825 MHz FM 1200 Baud AFSK
Beacon:   2401.220 MHz
[05012006]
=====
AO-16 PACSAT
Catalog number: 20439
Launch Date: January 22, 1990

Status: non-operational

Current Mode:  V/u

Uplink:         145.900 MHz FM 1200-baud Manchester FSK (reserved)
                145.920 MHz FM VOICE
                145.940 MHz FM 1200-baud Manchester FSK (reserved)
                145.960 MHz FM 1200-baud Manchester FSK (reserved)

Downlink:       437.026 MHz USB VOICE
                (1200-baud PSK - MBL Telemetry Only)

Mode-S Beacon: 2401.1428 MHz [NO FUTURE OPERATIONS PLANNED]

Mode and Antenna Polarization:
U: RC  437.050 MHz RHCP
   PSK 437.026 MHz LHCP
V: Linear

Broadcast Callsign: PACSAT-11
BBS:                PACSAT-12

AO-16 AMSAT Webpage: http://www.amsat.org/amsat/sats/n7hpr/ao16.html
[07242009]
=====
UO-15 UoSAT-4
Catalog Number: 20438
Launch Date: January 22, 1990

Status: Non-operational

Uplink: ?
Downlink: 435.1250MHz (?)
          435.1200MHz (?)
[06042009]
=====
UO-14 UoSAT-3
Catalog number: 20437
Launch date: January 22, 1990

Status: Non-operational

Uplink:   145.975 MHz FM
Downlink: 435.070 MHz FM
[05092004]
=====
FO-12 Fuji-OSCAR 12
Catalog Number: 16909
Launch Date: August 12, 1986
```

Status: Non-Operational

Mode V/U (J) Linear Transponder (Inverting):
Uplink: 145.9000 - 146.0000 MHz SSB/CW
Downlink 435.8000 - 435.9000 MHz SSB/CW

Mode V/U (J) Packet:
Uplink: 145.8500 MHz MFSK 1200 BPS
Uplink: 145.8700 MHz MFSK 1200 BPS
Uplink: 145.8900 MHz MFSK 1200 BPS
Uplink: 145.9100 MHz MFSK 1200 BPS

Downlink 435.9100 MHz PSK 1200 BPS

Telemetry Beacon: 435.7950 MHz SSB/CW
[01152007]
=====
UO-11 OSCAR-11
Catalog number: 14781
Launch Date: March 1, 1984

Status: Non-operational.

Current Mode: /v

Telemetry Downlink: 145.825 MHz FM 1200 AFSK
UHFBeacon: 435.025 MHz
Mode-S Beacon: 2401.500 MHz

Mode and Antenna Polarization:
V: RHCP
S: LHCP

Webpage: http://www.users.zetnet.co.uk/clivew/
MPEG3 files: http://www.ne.jp/asahi/hamradio/je9pel/uo11tlme.htm
[01012009]
=====
AO-10 OSCAR 10
Catalog number: 14129
Launch Date: June 16, 1983

Status: Non-operational

Uplink: 435.030 to 435.180 MHz CW/LSB
Downlink: 145.975 to 145.825 MHz CW/USB

Beacon: 145.810 MHz (unmodulated carrier)

W4SM has more information about the satellite at the following URL:
http://www.cstone.net/~w4sm/AO-10.html
[05092004]
=====
AO-8 AMSAT-OSCAR 8
Catalog Number: 10703
Launch Date: March 3, 1978

Status: Non-Operational

Mode V/U (J) Linear Transponder (Non-Inverting): Non-Operational
Uplink: 145.9000 - 146.0000 MHz SSB/CW
Downlink 435.1990 - 435.2000 MHz SSB/CW

Mode V/U (J) TLM Beacon: Non-Operational

```
Downlink        435.0950 MHz CW

Mode V/A (A) Linear Transponder (Non-Inverting): Non-Operational
Uplink:         145.8500 - 145.9000 MHz SSB/CW
Downlink         29.4000 -  29.5000 MHz SSB/CW

Mode V/A (A) TLM Beacon: Non-Operational
Downlink        29.4020 MHz CW
[01152007]
=====
AO-6 AMSAT-OSCAR 6
Catalog Number: 06236
Launch Date: October 15, 1972

Status: Non-Operational

Uplink:   145.9000 - 146.0000 MHz SSB/CW
Downlink:  29.4500 -  29.5500 MHz SSB/CW
Beacons:   29.450 MHz
          435.100 MHz
[01312008]
=====
AO-5 Australis-OSCAR 5
Catalog Number: 04321
Launch Date: January 23, 1970

Status: Non-Operational

Telemetry Beacons: 144.0500 MHz CW
                    29.4500 MHz CW
[01152007]
=====
OSCAR III
Catalog Number: 01293
Launch Date: March 09, 1965

Status: Non-Operational

Uplink:   145.9750 - 146.0250 MHz SSB/CW
Downlink: 144.3250 - 144.3750 MHz SSB/CW
[01012007]
=====
RS-15 RADIO SPORT RS-15
Catalog number: 23439
Launch Date: December 26, 1994

Status: Non-operational

Uplink:   145.858 to 145.898 MHz CW/USB
Downlink:  29.354 to  29.394 MHz CW/USB

Beacon 1:  29.352 MHz (intermittent)
Beacon 2:  29.398 MHz

SSB meeting frequency: 29.380 MHz (unofficial)
[06202004]
=====
RS-13 RADIO SPORT RS-13
Catalog number: 21089
Launch date: February 5, 1991

Status: Non-operational

Uplink:     21.260 to 21.300 MHz CW/USB
```

Downlink: 145.860 to 145.900 MHz CW/USB

Beacon: 145.860 MHz

Robot: 145.908 MHz
[05232004]
=====
RS-12 RADIO SPORT RS-12
Catalog number: 21089
Launch date: February 5, 1991

Status: Non-operational

Uplink: 21.210 to 21.250 MHz CW/USB
Downlink: 29.410 to 29.450 MHz CW/USB

Beacon: 29.408 MHz

Robot: 29.454 MHz
[05232004]
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/EX

SB SAT @ AMSAT W8ISS $WSR-325.S4
WSR 325 Part 4 11/21/2009

AMSAT NEWS SERVICE BULLETIN 325.S4
FROM AMSAT HQ SILVER SPRING, MD, November 21, 2009
TO ALL RADIO AMATEURS
BID: $WSR-325.S4

THE FOLLOWING SATELLITES HAVE RE-ENTERED OR HAVE BEEN RETURNED SAFELY:

NO-62 FCAL
Catalog Number: 29667
Launch Date: December 21, 2006

Status: Re-Entered
Re-entered: July 28, 2008

Downlink: 437.385 Mhz APRS AX25

Downlink ID: KD4HBO

Website: http://eng.usna.navy.mil/~bruninga/fcal.html
[01012009]
=====
NO-61 ANDE
Catalog Number: 29664
Launch Date: December 21, 2006

Status: Re-Entered
Re-entered: December 25, 2007

Uplink/Downlink: 145.825 Mhz FM APRS AX25
[01032008]
=====
NO-60 RAFT-1
Catalog Number: 29661
Launch Date: December 21, 2006

Status: Re-Entered
Re-entered: May 30, 2007

```
Main Downlink:      145.825 Mhz FM APRS AX25
APRS Uplink:        145.825 MHz FM APRS AX25
Voice/PSK31 Uplink:  28.120 MHz

Packet to Voice ID: RAFT
[06112007]
=====
HO-59 HITSat
Catalog number: 29484
Launch date: September 22, 2006

Status: Re-Entered
Re-entered: June 18, 2008

Telemetry Downlink: 437.4250 MHz AFSK 1200 BPS
Beacon:             437.2750 MHz CW

Callsign: JR8YJT
[01012009]
=====
SO-43 Starshine 3
Catalog Number: 26929
Launch Date: September 30, 2001

Status: Re-Entered
Re-entered: January 21, 2003

Beacon: 145.825Mhz
[02212009]
NNNN
/EX

ANS is released worldwide via the AMSAT ANS e-mail reflector and a live
radiocast on the AMSAT-NA 20-meter net held each Sunday on 14.282 MHz.
Pre-net operations start at 18:00 UTC, with current ANS bulletins trans-
mitted to the eastern U.S. at 19:00 UTC and to the western U.S. at 19:30
UTC.

Information on AMSAT-NA is available at the following URL:
http://www.amsat.org

Mailing address:
AMSAT-NA
850 Sligo Avenue, Suite 600
Silver Spring, Maryland 20910-4703

Voice: 301-589-6062
       888-322-6728
FAX:   301-608-3410

Currently, AMSAT-NA supports the following (free) mailing lists:

* AMSAT News Service (ANS)
* General satellite discussion (AMSAT-BB)
* Orbit data (KEPS)
* Manned space missions (SAREX)
* District of Columbia area (AMSAT-DC)
* New England area (AMSAT-NE)
* AMSAT Educational Liaison mailing list (AMSAT-EDU)
* AMSAT K-12 Educational Liaison mailing list (AMSAT-K12)

A daily digest version is available for each list.

To subscribe, or for more list information, visit the following URL:
```

http://www.amsat.org/mailman/listinfo/ans

In addition to regular membership, AMSAT-NA offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT-NA Office.

This week's Weekly Satellite Report Editor is James French, W8ISS.

ANS is always dedicated to past ANS editor 'BJ' Arts, WT0N, and to the memory of longtime AMSAT supporters Werner Haas, DJ5KQ, Dennis Kitchen, G0FCL and John Branegan GM4IHJ.

Please send any amateur satellite news or reports to: ans-editor{at} amsat.org
NNNN
/EX